

WHAT IS CLAIMED IS:

1. A measurement apparatus which measures a distance between a sensor probe and a target to be measured by using an electrostatic capacitance sensor, comprising:
 - 5 first and second sensor probes which are arranged at respective predetermined gaps to the target; and first and second sensor amplifiers which are connected respectively to the first and second sensor probes,
- 10 wherein when a distance between the target and the first or second sensor probe is measured, said first amplifier supplies a first current with the first sensor probe and said second amplifier supplies a second current which is different phase and/or amplitude from the first current.
- 15 2. The apparatus according to claim 1, wherein when said gap is measured by the first sensor probe, a change rate of the amplitude of the second current is set to 0.
- 20 3. The apparatus according to claim 2, wherein when said gap is measured by the first sensor probe, a change rate of the amplitude of the second current is set to 0.
- 25 4. The apparatus according to claim 1, wherein said phases of the first and second current are set to be different by 180°.
5. The apparatus according to claim 1, further

comprising a mechanism which changes a relative position of each sensor probe and target and a controller which determines the phases and/or amplitudes of the first and second current based on

5 each of the relative position.

6. The apparatus according to claim 1, wherein said sensor probes are so arranged as to simultaneously position centers of said plurality of sensor probes at a target boundary upon the change of the relative

10 position.

7. A measurement apparatus which measures a distance between a sensor probe and a target to be measured by using an electrostatic capacitance sensor, comprising:

15 first, second and third sensor probes which are arranged at respective predetermined gaps to the target; and

a sensor amplifier which supplies a current to the sensor probes and outputs a measurement result, wherein the sensor amplifier supplies a first current to the first sensor probe, a second current to the second sensor probe and a third current to the third sensor probe and the phases of the first, second and third current are set to be different by 120°.

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8. The apparatus according to claim 7, further comprising a mechanism which changes a relative position of each sensor probe and target and a controller which determines the phases and/or

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amplitudes of the first and second current based on each of the relative position.

9. The apparatus according to claim 7, wherein said sensor probes are so arranged as to simultaneously
- 5 position centers of said plurality of sensor probes at a target boundary upon the change of the relative position.